

Portable Nuclear Gauges



A Guide to the use of Portable
Nuclear Gauges in Kansas

Topics

- Licensing
- Radiation Protection
- Monitoring
- Leak Testing
- Transportation
- Emergency Preparedness
- Security
- ALARA

Licensing

A licensing guide, license application, and many other helpful forms (RH-3) can be downloaded from our website at:

(<http://www.kdheks.gov/radiation/download.html>)

Workshop registration CD

ALARA – (As Low As Reasonable Achievable)

Use of meters, personnel monitoring devices, and shielding to ensure low exposure to employees and the public

Reciprocity – Any company that holds a license in another state may apply for reciprocity to work in Kansas or vice versa.



Reciprocity

- Application for reciprocity in Kansas (or elsewhere) includes...
 - 5 Day advance notification for each separate application
 - Copy of current Radioactive Materials License
 - Copy of latest leak test for any and all gauges to be used
 - Training records for employees
 - Payment of Fee



Radiation Protection

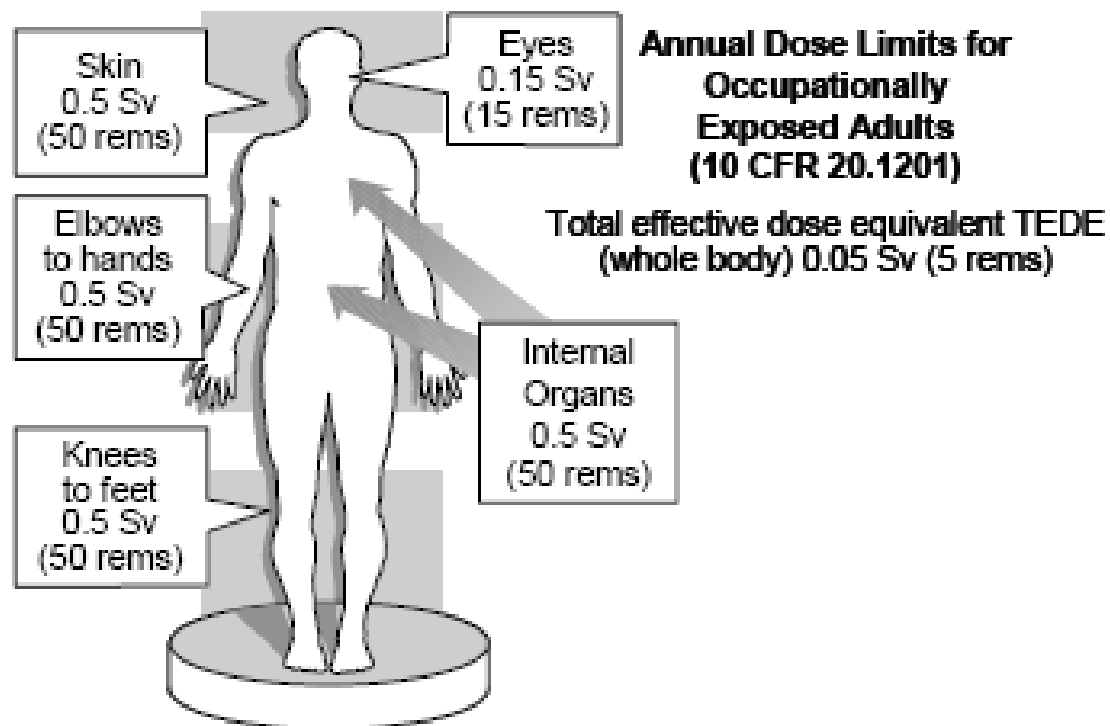
- Programs- Develop and implement a radiation protection program.
- ALARA- Time, distance and shielding.
- Periodically review the RPP.

10 CFR 20.1101

DOSE LIMITS

- | | |
|------------------------------------|---------|
| ● Individual adults | 5 rems |
| ● Deep dose (organ) | 50 rems |
| ● Eye dose | 15 rems |
| ● Shallow dose (skin or extremity) | 50 rems |
| ● Total dose to the public | 0.1 rem |

10 CFR 20.1101



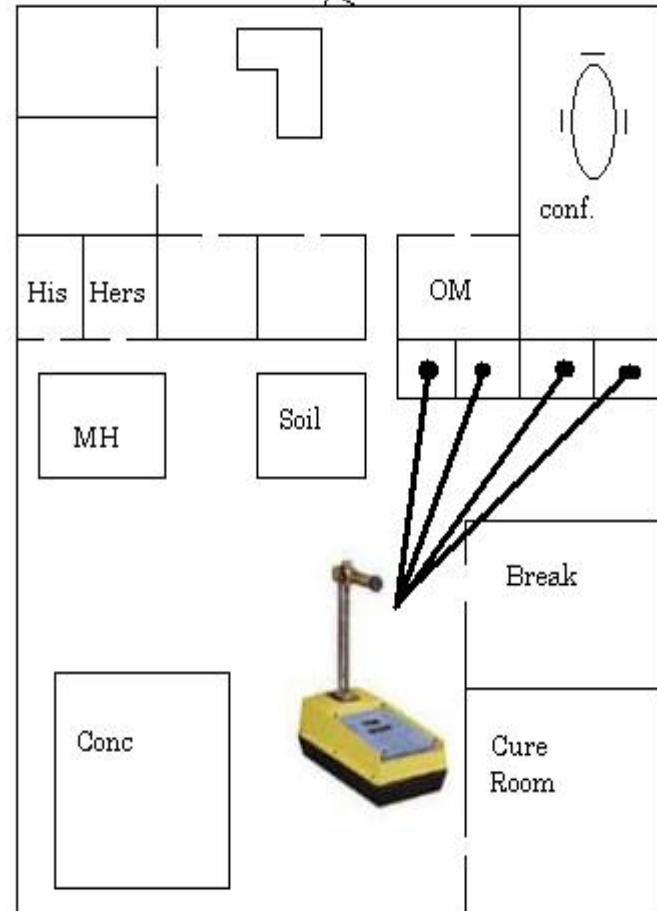
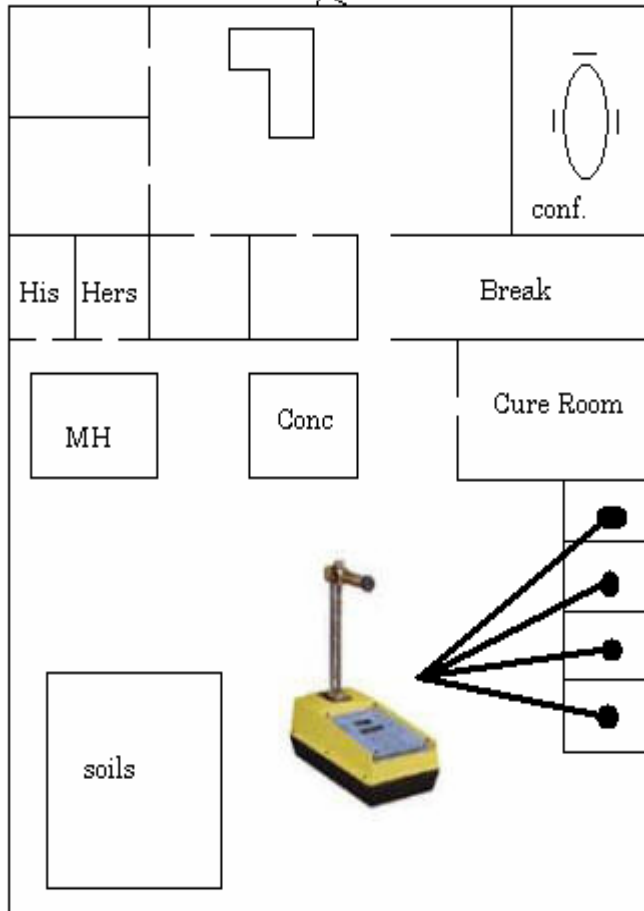
TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE) = DEEP DOSE FROM EXTERNAL EXPOSURE + DOSE FROM INTERNALLY DEPOSITED RADIONUCLIDES

Storage

- No closer than 15 ft from the nearest full time work station
- “Caution Radioactive Materials” sign posted on exterior of storage area
- Double lock storage system



Floor Plans





MONITORING

- **Occupational Dose Monitoring-** Monitor with film or TLD badges anyone who may receive more than 10 percent of the dose limits. Monitoring personnel may be waived once sufficient proof can be made that employees are consistently receiving minimal doses.
- **General Monitoring-** Surveys of area to determine exposure levels. Generally performed on a quarterly basis, however, documentation from the gauge manufacturer on Dose Equivalent Rates can be substituted for surveys.





Leak Testing



- Every 6 months
- **ALARA**- wear monitoring badge(s)
- Retain records for a period of three years or since last inspection
- **>0.005 μCi** is considered a leaking source
 - Device should be removed from service immediately
 - Gauge should be decontaminated and repaired or disposed of properly
 - Report sent to licensing agency (KDHE) reporting the leak



TRANSPORTATION

- Packaging
- Marking and Labeling
 - 3430 and 3440 Yellow II
- Placarding.....**NO**
- Accident Reporting
- Shipping Papers
 - Lading
- Training

SAMPLE OF SHIPPING CASE LABELS

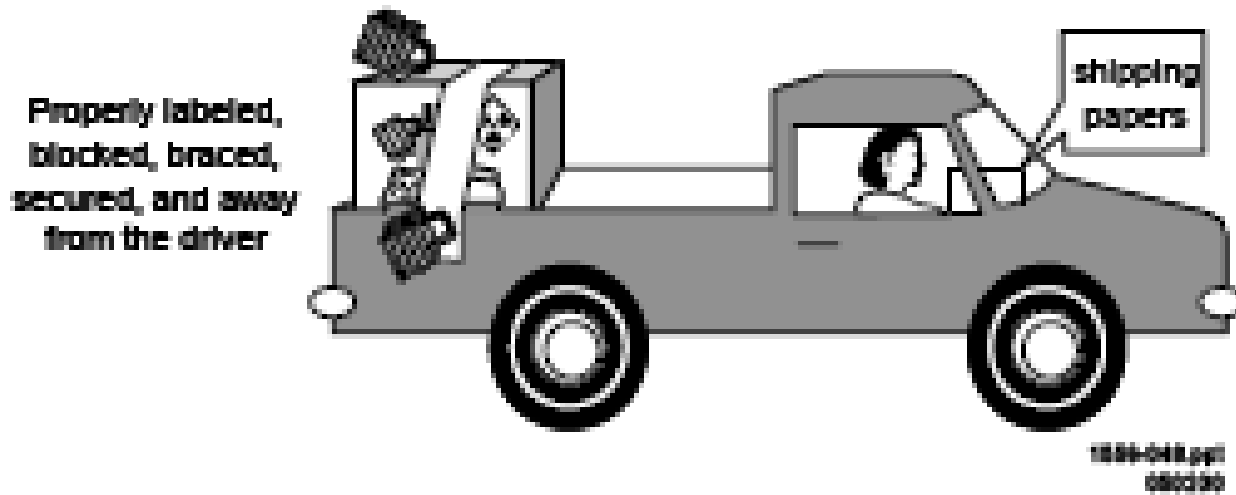


Front of Case



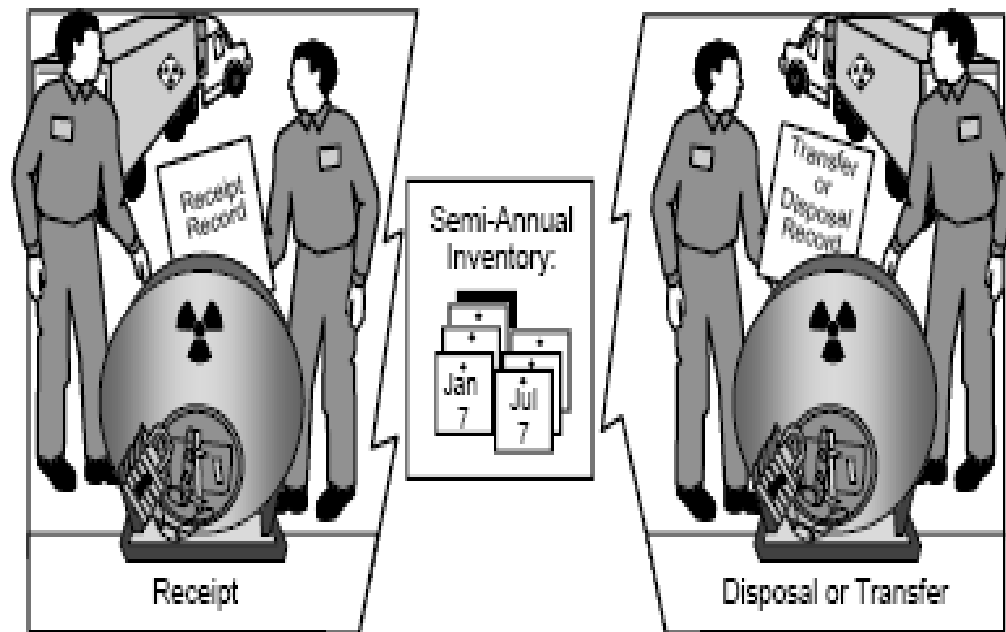
Back of Case

Transportation



Material Receipt and Accountability

Cradle to Grave Accountability



1556-010b.ppt
04-1300

EMERGENCIES



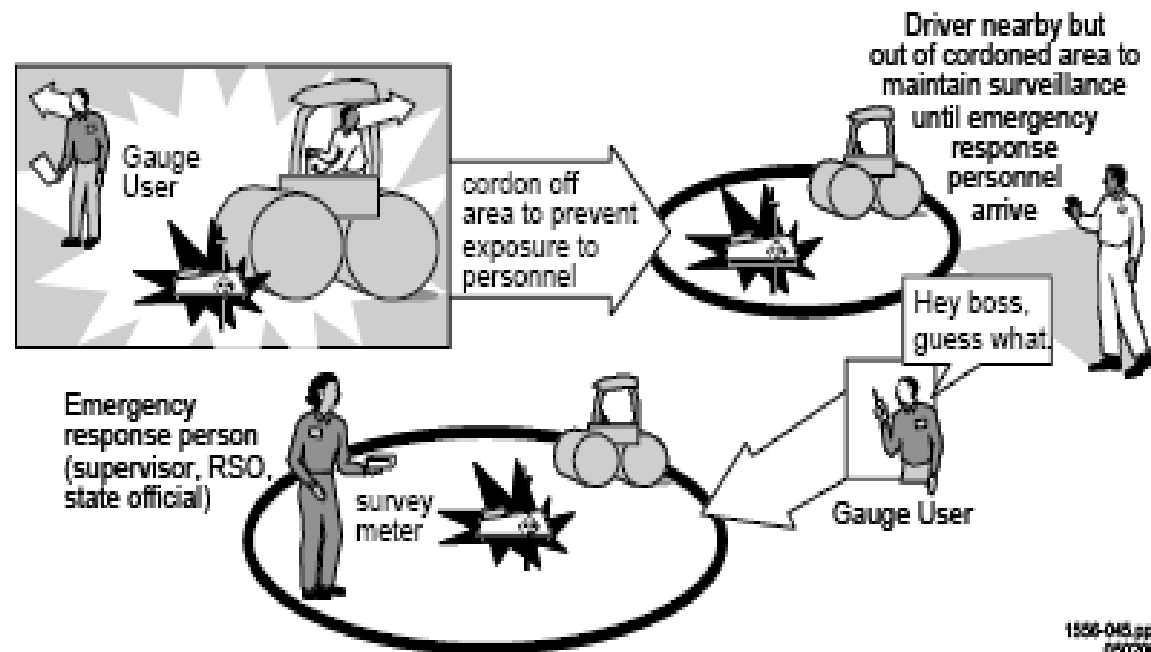
Emergency Plan and Procedures

- If gauge is lost or stolen...
 - Notify RSO
 - Notify Licensing Agency



- If damaged on job site...
 - 1 Locate the Source
 - 2 Keep people a minimum distance from gauge (Troxler=15 ft)
 - 3 If a vehicle is involved (Sheep's foot) keep on site until cleared of possible contamination
 - 4 Notify RSO who should then notify state agency and manufacturer

Proper Handling of Incidents



SECURITY

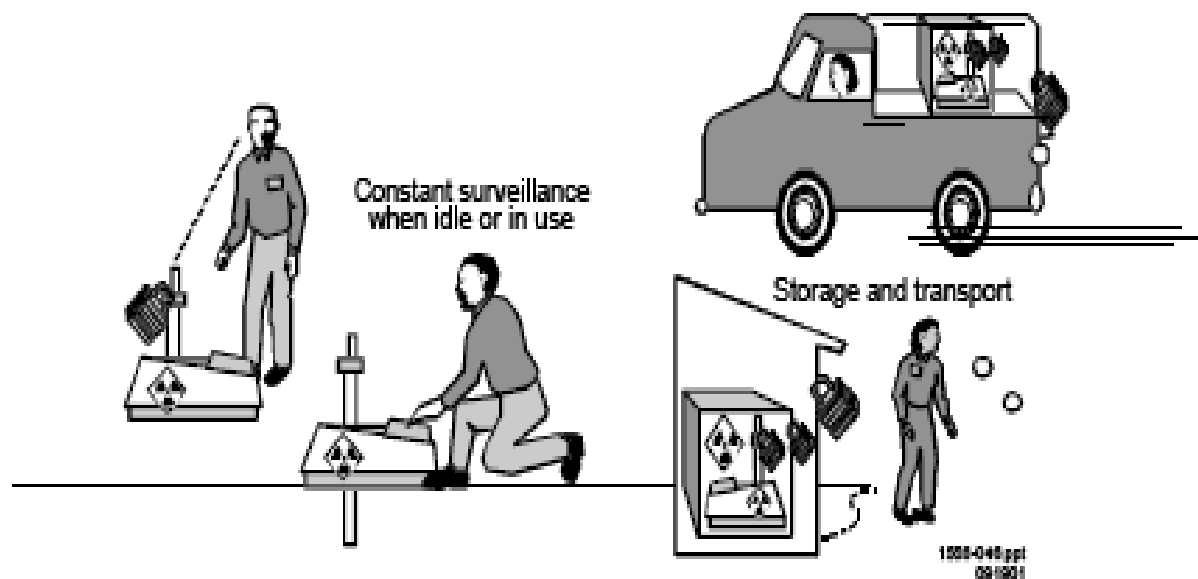


- Double lock security system
- Maintain control and visibility of gauge at all times
- Lock gauge inside cab of vehicle when unattended
- Never leave keys inside an unattended vehicle
- Reduce visibility of gauges
- NRC Increased Controls (ICs) for Portable Gauges...

Unlikely (300+ gauges)



Security



XRF Don't Forget About Us...

- Source based XRF analyzers need to be licensed under a specific not a general license
- X-ray based analyzers do not require a separate license however, they do need to be registered with KDHE or other licensing entity



KDHE CONTACT INFORMATION

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Questions?



One More Thing...



The KDHE Radiation Control Program

Cordially invites you to join us for a social event full of hot food, cold drinks, and warm conversation

When: 5:30 to 7:30pm on Wed. 12/6/06

*Where: The Atrium located here
inside the Ramada Inn*

Sodas provided by KDHE

Additional beverages available for purchase